

Help Screen



Seven pages packed with tips, advice and your PC problems solved by our resident expert Ian Sharpe. Find out how to contact him below

We're here to help! On these pages we'll do our best to offer help and tips on Windows, Linux, hardware, applications or anything else likely to be useful to other readers. We're also happy to receive further ideas about questions already published. (Installation problems with the *SuperDisc* are only dealt with via the support desk whose contact details are listed at the front of the magazine, although *Help Screen* is of course open to questions about using the apps featured on the *SuperDisc*.)

When writing in, please include as much relevant information as you can. If you have a software problem, be sure to say which version of the application you are using. With hardware, please be specific about the make and model. In all cases, specify the hardware and operating system version you use.

It is only possible to reply through these pages and we regret that we cannot give technical advice on a personal basis. But don't let that stop you – get writing and we'll do our best.

WRITE IN! HERE'S HOW:

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Ian Sharpe



Internet

Checking your e-mail

If you spend a lot of time on-line you may want to keep your e-mail program running and have it check for messages every ten minutes or so. The trouble is that a full-blown e-mail application may occupy several megabytes of memory and make your system less responsive. One answer is to run a tiny utility that checks your mailbox periodically and alerts you when there is mail to collect.

The freeware e-mail utilities section at www.nonags.com lists many mailbox checkers of varying capabilities and sizes. 'Small' is the watchword here so I picked some of the more svelte offerings, discarded obvious runts and was left with Pobox 3.0. It's lightweight, hasn't crashed on me and doesn't get hysterical when you aren't connected to the Net. It has enough configuration options and features to make it easy to live with, and it's on the cover disc.

Just copy the Pobox folder to \Program Files, run Pobox.exe and configure it to work with your POP3 account. If you want it to run at start-up, tick the appropriate box and it adds itself to a Run key in the registry (HKEY_CURRENT_USER \ Software \ Microsoft \ Windows \ CurrentVersion \ Run).

While it's running, you can right-click the tray icon to get a pop-up menu, or left-click it to



Sit Pobox in your System Tray and it'll keep checking your POP3 e-mail account while you're on-line.

check instantly. I find its pop-up dialog tends to come up behind the running application, but that isn't much of a problem because the Pobox icon also changes colour and there's an audible warning. The program can also automatically launch your e-mail client.

Windows

Restore displaced icons

Q I have a few programs which change screen resolution down to 640x480.

When I close them and return to my normal 800x600 desktop, the icons remain in a 640x480 area of the screen. Is there a quick way to restore the icons to their original positions?

Rob Norden



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PATH: \handson\files\helpscrn\desktop

A I had a stab at this problem back in issue 149 and came up with an answer which involved rebooting Windows. I wasn't happy with it for that reason, but now I have devised a better solution. Don't be put off by all the background explanation here – it's dead simple and takes about three minutes to set up.

The first step is to use the cover disc interface to copy this month's *Help Screen* files to your hard disk. If you copy them yourself in Explorer, all the files will have the Read Only attribute turned on. This could cause problems later.

We will create an icon which, when double-clicked, saves the state of the desktop. To do that, make a new shortcut with this command line:

```
regedit /e c:\desktop.reg
HKEY_CURRENT_USER\Software\
Microsoft\Windows\CurrentVersion
\Explorer\streams
```

Save your fingers by loading RestoreDesktop.txt from the cover disc. This contains the above command for you to copy and paste. Name the shortcut 'Save Desktop'.

Next, move the PrcView folder to \Program Files. Igor Nys' program has featured before in *Help Screen*. It's a sort of enhanced Task Manager aimed at troubleshooters and programmers. Bundled with it is Pv.exe, a command-line program which lists and



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PATH: \handson\files\helpscrn\pobox

manipulates tasks (programs) running in Windows.

You would think after restoring the desktop.reg file to the registry, getting Explorer to refresh the display would make it use the saved settings. It doesn't. If you restart the machine, before closing down Explorer overwrites the restored settings with the current state of the desktop.

If you use Windows' Task Manager to kill Explorer, it doesn't overwrite the settings. A new copy of Explorer started immediately after will rebuild the desktop as we want it. Task Manager is too fiddly for this purpose, so we use Pv.exe to do the same thing quickly and automatically.

To restore the saved desktop you need this batch file (RestoreDesktop.bat on the cover disc):

```
start /w "c:\windows\regedit.exe"
/s c:\desktop.reg
```

```
"c:\program files\prcview\pv.exe" -
k -f explorer.exe
start "explorer.exe"
```

The first line uses Regedit to import desktop.reg, with /s preventing it from asking for confirmation. I use the MS-DOS 'start' command with the /w switch to make sure this has been done before the batch file is allowed to proceed.

Then I run Pv.exe with the -k switch to kill Explorer.exe, and the -f switch to do so without prompting for confirmation. Lastly, the 'start' command is used to restart Explorer. This recognises that no other copy of Explorer.exe is running and goes into 'desktop shell' mode.

Move the batch file to wherever you keep this sort of thing. Make a shortcut to it on the desktop. Bring up the shortcut's Properties and tick 'Close on exit' on the Program tab.

You now have a pair of new icons. Run 'Save Desktop' to save the state of the desktop to c:\desktop.reg. You only need run it again when you want to save a changed configuration. The registry settings can take a while to catch up with the desktop, but pressing [F5] seems to flush the information through.

Now when your desktop gets messed up just double-click the batch file shortcut. A few moments later it will be back in order.

That should be the end of the story, but there is a fly in the ointment: after running the batch file, most of your System Tray icons disappear. The programs are still running, but their tray icons are dead. It's a common problem when a program crashes, and there is a freeware utility to sort it out.

Mike Lin's TraySaver manages System Tray icons by selectively hiding them for example, which is pretty useful if your tray is slowly taking over your taskbar. TraySaver also detects when System Tray icons have been lost and magically resurrects them in most cases. Beta 5 is on the cover disc. Run TraySaverSetup.exe to install it.

Later versions of TraySaver are available at www.mlin.net, but Beta 5 is supposed to work reliably on the widest range of machines. Note Mike's advice about first removing older versions if you decide to install a later edition.

Security

Open secrets

In this and last issue, I reviewed products which lock your data away from prying eyes by encrypting it. My dark suspicions about this method being applied to anything less than the entire partition were accentuated by news stories of MI5 laptops going AWOL.

Suppose MySecrets.doc is stored in an encrypted file or folder. You have some software which automatically decrypts the file when an application loads it, then re-encrypts it when it is saved back to disk. You're the only person who knows the password. Given normal care, just how secure are the contents of MySecrets.doc? Read on if you think the answer is 'safe as houses' because given 10 or 15 minutes to make free with your PC, any moderately skilled user might be able to extract sensitive information.

When you work with your data, copies of all or parts of it may be placed in un-encrypted locations on the disk. Principally, we're talking about the operating system's swap file and temporary files created by the application. Even if the temporary files have been deleted, their contents live on until the space they occupy is needed again. When that space is allocated to another file, it may not all be overwritten immediately.

There are yet more ways that encrypted information can be invisibly recorded in an unencrypted state, but you get the idea.

To find out how easy it is to dig up a secret or two I decided to try to exploit one of the more obvious loopholes. I encrypted a folder using PC Guardian's Encryption Plus for Folders. Then I created a new Word document inside it. With the document open in Word I loaded other

RETROSPECT WINNER



starletter

Honey, I shrunk the GIFs

This month's Star Letter is won by Adam Betts. He will receive a copy of Retrospect Desktop

It is said that people are likely to move on to another site if a Web page doesn't appear within ten seconds. One reason a page may download slowly is the size of the graphic files, so anything that can be done to make them smaller has to be good for your site.

GIF files can often be reduced in size in ways that don't change their appearance, or degrade it within acceptable limits. This makes your page download quicker and helps reduce network traffic.

I was put on to the possibility of GIF shrinking in Java Workshop a few months ago. Animated GIFs were being created with some clever space-saving tricks. I don't program but I guessed there must be stuff on the Web to do similar things with existing files.

I got Advanced GIF Optimizer (shareware) from www.gold-software.com. This does a pretty good job. I haven't yet encountered a file which didn't look okay after compression. Results have been between no possible optimisation and an amazing 87 per cent size reduction.

At the time of writing there are also programs to optimise



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PATH: \handson\files\helpscrm\ago

GIFs and JPEGs at www.spinwave.com. These are operated from the Web page and will load files from a URL or off your disk. The results are displayed at various levels of compression and you can download your choice. This a 'free test service' so I cannot say if it will still be available when readers get there.

Adam Betts

There are other programs and Web-based services around but give Advanced GIF Optimizer a go. I have put it on the cover disc. This trial version will run 15 times though you can process as many files as you like during each session. Do keep copies of the originals!

I don't know if AGO employs



Nobody has bandwidth to burn – ensure your graphics are pared down to the minimum size.

the same techniques for animated GIFs as David used in *Java Workshop* but I was curious about how static GIFs could be squashed when they're already packed very efficiently with LZW compression. According to Pete Kotenev at Gold Software, "AGO removes comments embedded in the file, merges pixels of the same colour, sorts the colour map by usage and removes unused entries".

GIFs have a moderately complex structure with scope for inefficiency despite the use of LZW compression. There is a colour map, or palette, which is a list of colours used in the picture. The value recorded for each pixel is an index into the list. As I understand it, 'merges pixels of the same colour' means that if several palette entries contain the same colour, all pixels which index those entries are modified to point to only one of them. Reducing the variety of pixel values in the picture improves the compressibility of the file and may also require fewer bits to be allocated to each pixel.

programs and performed normal activities. I expected that some of the memory allocated to Word would be paged out to the swap file.

You can't load an active win386.swp into a file-based search tool, so I closed down and rebooted to MS-DOS mode. I renamed the swap file and went back to Windows. Being unable to find win386.swp, Windows created a new one enabling me to load the original into the trial edition of Vedit Plus (www.vedit.com). This editor handles large files very easily. A quick search revealed:

- Program fragments and recognisable icons, so it would be possible to tell which software I had been running;
- Internet bookmarks;
- URLs recorded by cookies;
- My to-do list, which I keep open in Notepad;
- Fragments of e-mail messages;
- My Internet account user name and password, close to each other and obvious for what they were;
- My Encryption Plus for Folders user name; clearly indicated as a user name (though no password) and located close to program fragments belonging to Encryption Plus;
- A chunk of the 'secret' Word document, unencrypted.

Think what this means. In only a few minutes, with the bare minimum of tools and hardly any skill, I had turned up significant information.



The secret's out! In among the junk in the swap file is part of a document stored in an encrypted folder.

The point I am making is not that file and folder encryption is no good. It puts a significant hurdle in the way of less determined and knowledgeable people. But imagine what a skilled and motivated person with specialist tools and more time could extract from your disk. A lot, I promise you.

It's actually very difficult to erase all traces of recognisable data from a drive. Ultimately you can't be sure you're safe even if you overwrite every last byte on the disk with new data. The read/write head doesn't land in exactly the same place on every occasion, so a narrow band of old data can still show along the edge of the track. This is why disk erasure utilities should overwrite data repeatedly, to try to cover the whole range of lateral tolerance in the head position.

Hardware

AMD speed boost

Anyone who has an AMD K5 or K6 processor running Win9x (not NT) may be able to get a small speed boost by running enwa.exe at boot-up (that is, from inside Autoexec.bat). It's obtainable from www.sysopt.com/fastutil.html.

My own PC's CPUBM benchmark improved by five per cent. (I got CPUBM from <http://cpusite.examedia.nl/software/cpubm.html>). Okay, not exactly jaw-dropping, but every bit helps and some PCs may do better. Apparently the processor feature enabled by this utility ('Write Allocate', whatever that means) is turned on by newer BIOSes, so there will be no benefit on those systems.

Chris Wheeler

I have seen people claiming implausible speed increases after using this utility.

The 200MHz K6 in one of my PCs gives a similar result to yours. Write Allocate is a way to improve the efficiency of the CPU's use of cache memory when writing data to sequential locations.

Benchmarks like CPUBM give an indication of

SAFETY IN BLUNDERS

Backing up your registry

Editing the registry can land you in trouble if you don't have a recent back up

Without a back-up, a mistake when editing the registry can render your Windows installation brain-dead. There are many ways to save and restore copies of your registry files but here are two easy ones. In Windows 95 use the Emergency Recovery Utility (Eru.exe) in \other\misc\eru on the Windows CD. Windows 98 users should employ ScanReg which is installed with Windows. Run Scanreg.exe from Start / Run.

If you need to restore the registry and Scanreg doesn't do it automatically when you start Windows, reboot again and press [F8] immediately after the self-test. This gives you the start-up menu. Choose 'command prompt only'. At the MS-DOS prompt type:

```
scanreg /restore
```

raw CPU performance. Real-world performance depends on many other factors, too. That five per cent may show through on occasions when the CPU is pushed to its limit. Most of the time you won't be able to tell the difference.

Windows

Fixing thumbnail view

One of the neater features of Win98 is the ability to display thumbnails of images and other files types, when in Web view. It's no substitute for real image management software but it is useful for keeping folders tidy.

Recently, .jpg and .gif files had become associated with MGI PhotoSuite, but I wanted to associate them with another image editor. So I took the lazy way, and in Windows Explorer performed: View / Folder Options / File Types / Remove. I then associated them with the other editor by double-clicking sample .gif and .jpg files.

All worked fine – but I've lost the thumbnail display. I've tried reinstalling MGI PhotoSuite and associating the file types – no joy. I've tried associating the files with Internet Explorer too. Other file types such as .png and .bmp do produce a thumbnail but I cannot work out how get them back for these two types.

Jon Ford

For the benefit of those who don't know about thumbnail view, it is enabled for a folder by right-clicking it in Explorer, selecting Properties and then 'Enable thumbnail view'. Go into the folder and select View / Thumbnails. It doesn't work for all file types. Use this feature sparingly because it takes up disk

USEFUL WEB ADDRESSES

Getting help on the Internet

How to get information direct from manufacturers and fellow users

If you need an updated driver or other help direct from a manufacturer, see if it has a Web site. One of the search engines will help you locate it – for example www.mamma.com, www.aj.com, www.hotbot.com, www.excite.com or www.av.com.

For your convenience, I have compiled a list of Internet addresses of many leading hardware and software manufacturers. It is in the file hsnet.htm which you will find on the SuperDisc every month. Load hsnet.htm into your Web



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PATH: \handson\files\helpscrn\sites\hsnet.htm

browser, make your Internet connection and click the desired link. Why not copy the Sites folder to your hard disk and bookmark hsnet.htm for instant access?

If what you want isn't there and the general search engines turn up tons of irrelevant links, try www.service911.com/content/SupportHelp.asp which has a searchable database of tech support contacts. If you find a site I haven't listed, but which could

be useful to other readers, please drop me a line at ian.sharpe@futurenet.co.uk. Newsgroups are also a great source of help and advice. It is likely that your question has been asked and answered before, so before posting a message search previous postings at www.deja.com. The Power Search option usually gives better results. And don't forget PC Plus' own newsgroups at www.pcplus.co.uk.

space with cache files containing the thumbnails. These are named thumbs.db and can get quite large if you have a lot of images.

If thumbnail view gets broken, the only fixes I can find are to reinstall the IE4 desktop update (for Win95 systems with IE4) or to type this into the Start / Run dialog:

```
regsvr32.exe /i shdocvw.dll
```

Windows

Strange startup file

Q When I boot into Windows I get a file automatically opened in Notepad. It is called Of97spec and begins with the text "[SMS Inventory Identification - USER NOTE - NEVER DELETE OR CHANGE THIS FILE IN ANY WAY]". I have had Office 97 installed for a couple of months and it has never come up before. Why is it doing it now? **Adrian Easton**

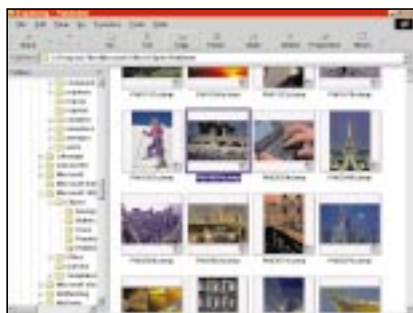
A What you see is Of97spec.ini which should be in the Microsoft Office folder. I don't know how, but it has found its way into one of the places from which programs auto-run at start up. The '.ini' file type is associated with Notepad. Check the following locations:

- The StartUp folder (C:\Windows\Start Menu\Programs\StartUp);
- Win.ini (Go to Start / Run, type 'sysedit' without quotes and press [Enter]);
- The registry. Run Regedit and see if you can locate it in HKEY_CURRENT_USER \ Software \ Microsoft \ Windows \ CurrentVersion \ Run, or the same path under HKEY_LOCAL_MACHINE.

If there is a shortcut link to Of97spec.ini in StartUp you can safely delete it. If the file itself is there, before deletion you need to ensure there is a copy in the Microsoft Office folder. If Of97spec.ini is named in Win.ini, just delete that line and save the file. If it's named in a registry Run key, delete the entry.

While we're on the subject of the Run key, let me mention a problem which has come up before in *Help Screen* but happens frequently enough to be worth mentioning again. If Windows invariably starts up with a certain folder open, it may be due to a faulty entry in a Run key.

Explorer in Win98 and 2000 is a bit shy about thumbnail view, but it's there and useful if you have a big art collection.



What happens is that a program has been set up to run from there, but the path specification contains a mistake. Windows just sees the first part of the path up to the error. That specifies a folder, so Explorer is opened just as it is if you had typed the folder path into the Start / Run dialog. Look out for mistakes such as a double backslash instead of one, spaces that shouldn't be there and so forth.

Windows

Clearing registry sludge

Q I have just finished reading the article on cleaning up your PC (issue 162). Even though I have been using applications for around five years, I have only just started delving deeper into the system. Under HKEY_LOCAL_MACHINE in the registry I have noticed folders related to programs that I have not used for several months and have deleted (mainly games). Is it safe for me to delete these or should I just leave them be? **Martyn Carey**

A This is common and I'd leave them be as long as Windows appears to be running satisfactorily. An obese registry will slow the machine a little - and only a little - but by the time it gets to that stage, your Windows installation is probably well encrusted with redundant and duplicate files, fonts you don't use and so on. These do more to throttle Windows than a portly registry.

The programs Frank mentioned in his article can help, or you could take the free and most effective route which is to back up your data and any other important files, format the disk and reinstall everything. Believe me, your PC will feel as though it has thrown away its crutches.

If you prefer to tidy the registry manually, you should be able to remove these redundant keys without problems. Of course, there is always a possibility that tinkering may cause trouble, so back up your registry first. There is a quick recap on how to do this in *Backing up your registry*.

While you're at it, run Microsoft's RegClean utility. At the time of writing this is available from <http://support.microsoft.com/support/kb/articles/q147/7/69.asp> in the ever-shifting sands of Microsoft's Web site. RegClean processes HKEY_CLASSES_ROOT only, but may delete obscure gunk you probably won't have found.

After pruning the registry, in Windows 98 you can restart in MS-DOS mode and type:

```
scanreg /opt
```

This closes up the gaps in the file you created by deleting keys. The registry files stay the same size if you don't do this. In Win95 you have to export the entire registry from Regedit's Registry menu, then reboot to MS-DOS and reimport. If you had saved the registry as registry.reg, the command lines you would type are:

```
cd \windows
regedit /c registry.reg
```

Don't even think about doing this without a back-up! Back in Windows, you can further improve registry performance by running Defrag.exe from Start / Run and adding the /P switch. This causes the registry to be included in defragmentation, which doesn't happen by default. This won't work in Win95.

Now, about reinstalling Windows. If you have 98 and wish it took up less space or ran faster, try a program called 98lite, available from www.98lite.net. This modifies the standard Win98 setup program to make it possible to omit features which aren't normally optional. For example you can pass up on IE5, which would be ideal if you're a Netscape or Opera user, and skip the active desktop and other features. The result is a smaller and quicker installation.

Internet

Testing line quality

Q I have tried the test proposed on page 170 of issue 161 but to no avail. After I enter AT&V1, I get ACTIVE PROFILE then lots of letters and figures such as E1 L1 M1 00 T but nothing like that shown in the illustration. My modem is a Rockwell Soft56 Data, Fax Speakerphone PCI modem. I have tried it on three different ISPs. **John Nicolson**

A Modems all share a basic set of common commands through which they can be controlled. On top of that there are proprietary commands that only work with modems based on one chipset, or on a limited range of chipsets. I'm afraid the use of AT&V1 to get line quality information isn't universal. Some modems don't use that command for anything while others use it for a different purpose (as in your case).

If you are lucky, your modem will have an alternative command to report line quality. The only way to find out is to pick through the command reference in the manual, if it has one, or try the Net. Modem command sets are often documented on-line. Try the manufacturer's Web site first and do a Web search if there's no joy. You will probably find that your modem isn't made by Rockwell; it's most likely another manufacturer using the



Not the full monty - 98lite Standard strips Windows of superfluous clothing but the Professional version turns it into a real streaker - "the naked guts of Windows 98 running at full tilt", according to the author.

Rockwell chipset. Links to some of the general modem resource Web sites have been added to the *Help Screen* Internet links file – just type ‘modem’ into the search field.

In this instance, quite a few modems are based on the Rockwell (now Conexant) Soft56 – see www.808hi.com/56k/soft56.htm. According to this, the commands for the Soft56 are the same as the Rockwell/Conexant HCF. A list of HCF commands is to be found at www.zoltrix-int.com/PUBLIC/MODEM/ATmanual/ATHCF561.HTM.

There we find that AT%E1 turns on line quality monitoring and AT%Q reports the quality. So go to Control Panel, double-click Modems, select your modem in the list and click Properties. On the connection tab of the Properties dialog click Advanced. In the Extra Settings field add the following to the end of whatever is there already:

%E1

This is supposed to turn on line quality monitoring. Click OK twice and then Close. Go away and do some Internetting, then go to the terminal window as explained in the original article and use this command:

AT%Q

Press [Return] afterwards. This ought to report the line quality (EQM). You might also try:

AT#UG

Windows 2000

Plot the best upgrade

Q I bought Windows 2000 Professional as soon as it became available and have been impressed with it. Buying into the first release was probably a rash thing to do but so far I have had no problems. Win2000 is less crash-prone than Win98, and more robust when a program does go feet-up.

Performance is a shade below where it was with Win98 and I'd like to sharpen it up. I am willing to spend one or two hundred pounds on strategic hardware upgrades. How do I decide the best options? At present I have an 8GB WD hard drive, 64MB RAM, Celeron 466 and Voodoo 3 video adaptor. **Phil Gould**

A It depends what you're doing with it, but my gut reaction is more memory and/or improve hard drive performance. This processor is unlikely to be a bottleneck unless you're running power-hungry applications, and your graphics card ought to be fast enough for all but the most demanding software.

Win2000 will run in 64MB. That's at the bottom end of the useful range and another 32 or 64MB should give it an appreciable lift. Before plumping for that, though, you should assess your system carefully to find out exactly what's happening behind the scenes.

The hard disk is the first thing to check.

We've had a lot of talk in recent *Help Screens* about DMA and disk speed. Check whether DMA is enabled by going to Device Manager ([Windows]+[Break] then the Hardware tab and the Device Manager button). Open the IDE ATA/ATAPI Controllers branch and double-click the Primary IDE channel. On the Advanced tab it will say what the current transfer mode is. If it isn't Ultra DMA, the disk subsystem is casting a pall over the whole show. I went into this in some depth in issue 161.

Aside from that, here is how to get Win2000 to help you analyse how key hardware components are performing.

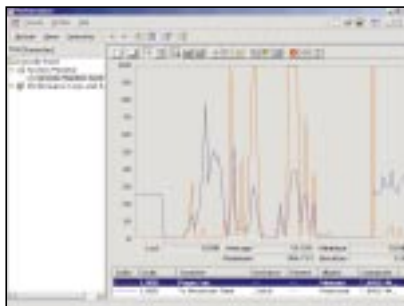
Go to the Administrative Tools section of Control Panel and double-click Performance. The Performance console is Win2000's version of System Monitor in Win9x. Its performance charts will help you decide which components are the biggest drag.

To begin monitoring you need to add the performance counters which suit your purpose. Click the Add button ('+' symbol) and add these for starters:

Object
Counter
Processor
% Processor Time
Memory
Pages/sec
Memory
Available Mb
PhysicalDisk
% Disk Time
PhysicalDisk
Current Disk Queue Length
System
Processor Queue Length

Once you've done that you can start your normal activities and watch what happens to the line charts when performance falls. The button with a red circle enables you to pause monitoring so you can study the graph.

The percentage processor time will spike periodically but mostly it should stay below 80 per cent. If it remains high when disk and network activity are low, your processor is a bottleneck. Confirm this with the Processor Queue Length value. This is the number of program threads waiting to be serviced. A value that stays above two indicates that the processor



Here we are plotting processor time (blue) and pages/second (red). Note how pagefile use usually soars when CPU load increases. This machine probably needs more memory.

WIN2000 TIP

Fast starts in Win2000

It's not dead, it's just sleeping

How would you like Win2000 Professional to boot up in under ten seconds? Go to Control Panel and open the Power Options section. On the Hibernate tab tick 'Enable hibernate support'. When you shut down, select Hibernate. The current state of the machine is saved to disk and reloaded next time you start up, bypassing all the usual start-of-day activity. While you're in the Power Options dialog, go to the APM tab and see if it's possible to enable APM support. This will enable Win2000 to turn off the power when you close it.

When restarting from Hibernate, you won't see a dual-boot menu if you have one. There is a point where you're invited to press [F8] for troubleshooting and advanced startup options. Press [F8] and you can proceed to your multi-boot menu.

is overloaded. Don't fall off your chair if the value is 20 or more – the scale factor defaults to 10, so ignore the zeroes.

Moving on to the memory counters, Pages/sec measures the rate at which memory pages are swapped with the pagefile (NT-speak for the swap file). If it spends a lot of time of time above five, pagefile use is high and more memory would improve performance. The Available MB figure enables you to see the amount of free physical memory available. If it sinks to a steady 0-10MB, it confirms that Windows has little room for manoeuvre.

The Disk Time value tells you the percentage of elapsed time spent on disk input/output. A high value could indicate a lot of pagefile activity, or just a lot of normal disk access. More memory will reduce pagefile use, but a faster disk subsystem would further improve performance dead spots where this value is elevated – obvious, really, but the graph pinpoints how big a part disk access plays in the performance deficit.

Current Disk Queue length measures how many input/output operations are queued up for the disk subsystem to deal with. A consistently high value confirms that the disk throughput is a significant bottleneck.

If you dig into the help file you will find that the Performance console has a lot of depth. It's a crucial tool for network and server diagnostics. Indeed, whole books have been written on performance monitoring in NT. An important thing you should know about the Performance console is that when you shut it down, the counters you have added will be forgotten and you'll have to add them again next time. To prevent this happening, create a custom console. You add your performance counters to this, then save it. Next time you start the Microsoft Management Console (the program which hosts the Performance console) you reload your custom console from the Console menu. Instructions for doing this are in the help file under 'Work with Settings'.



Application workshop

More Excel stripes and how e-mail can invisibly infect your PC with a virus

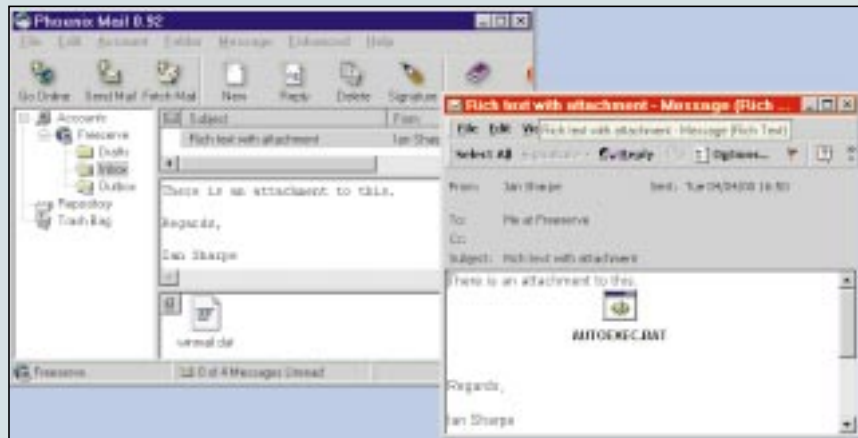
Outlook

Do you read me?

Q On several occasions when I have tried to send files as attachments, the intended recipient has replied "Cannot open your attachment", "Don't know how to open .dat files", "Don't know how to open winmail.dat file" and so on. Most were inexperienced users and I thought that perhaps they didn't know how to use their software properly, but the last one was to a software development firm. Any idea why my files turn up as winmail.dat, instead of what I sent?

Because the intended recipient didn't seem able to receive my attachments, I pasted the source code of a small C++ example program into the body of an e-mail. The program included comment lines preceded by double forward slash.

I couldn't understand why the program that worked perfectly okay on my machine wouldn't compile on the recipient's. Then I happened to notice, in the copy of my text appended to recipient's reply, that 'file:' had been prefixed to comments I had preceded with double-slash. Obviously, the double-



The same rich text message with an attachment displayed in Outlook (left) and another program which doesn't understand what winmail.dat is all about.

slash is being interpreted as a special character but is this being changed at my end (I am using Outlook 98) or at the recipient's?

MS Outlook provides me with options to format outgoing messages in various ways, or to send in plain text. Obviously, I don't know what a recipient will be using to receive my mail. If I send something formatted with

fancy fonts in pretty colours with a background image to someone who has not facilities to receive it, will they see my message or just gobbledygook?

W B Moss

A If you wanted to catalogue Outlook annoyances, this would be an excellent start. When you send a formatted message there are two choices: rich text or HTML.

With rich text, Outlook sends the message as plain text and tacks the formatted version on to the end of the message as an attachment called winmail.dat. If the recipient's e-mail program does not understand rich text messages, it should show the plain text version and winmail.dat will appear as an attachment. A program that understands rich text will display the contents of winmail.dat, which may not then be shown as an attachment.

An attachment sent with a rich text message is incorporated into winmail.dat. If the recipient's e-mail client does not handle rich text, the attachment probably won't be seen either.

HTML mail works similarly. A plain text version is, again, put at the start of the message and the HTML version is tacked on to the end, but there is a subtle difference – it is not denoted as an attachment. It is just marked as a separate section within a multi-part message.

A program that understands HTML e-mail will skip the plain text and render the formatted version. Others behave unpredictably. The recipient may see plain text, or nothing at all, or they may see raw HTML code following the plain text, or the whole lot may be treated as an attachment... it depends on the program, as does what happens to attachments.

You should always send messages as plain text unless you are sure that the recipient can

VIRUSES BY E-MAIL

Caught a dose of the KAK?

Simply viewing an e-mail can infect your PC with a virus

Until recently it was highly unlikely that your PC would get a virus just by viewing an e-mail and not executing any attachments. That has changed with HTML e-mail.

A reader sent me a question composed in Outlook Express. When I viewed it, Outlook told me the message contained an ActiveX control and should I allow it to run? I said no and carried on, meaning to investigate when time permitted. The same dialog came up every time I paged through my inbox and that message appeared in the preview pane. In my haste I clicked the wrong button on one occasion. Nothing seemed to happen but, realising what I had done, I set out to discover what was going on.

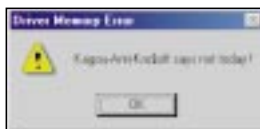
Detailed scrutiny of the message's HTML source

revealed some very strange code engaged in file and registry access. To cut a long story short, the message contained the KAK.worm virus. Like Bubbleboy before it, KAK exploits a security loophole to gain access to your disk. The payload is to display a dialog on the first day of every month at 5pm, alerting the user to a driver memory error, followed by a reboot. It also attaches itself to every outgoing HTML message from Outlook Express.

KAK's payload isn't harmful, but heed the warning: using the same techniques, somebody could reformat your hard disk just by placing the virus code on a Web page or, more likely, sending it to you in an HTML e-mail which you read in an HTML-capable client.

Prevent it happening to you by installing the security patch

from www.microsoft.com/technet/security/bulletin/ms99-032.asp. You can check if you're already infected by searching for KAK.HTM in your Windows folder. If it's there, you've been cacked on. Don't send any mail until the machine has been disinfected – instructions are located at www.pchell.com/internet/kakworm.shtml and www.datafellows.fi/v-descs/kak.htm.



Seen this recently? If so, your PC may be attaching the KAK.worm virus to every e-mail.

handle the fancy stuff. Even then, formatted mail wastes bandwidth and disk space. That's annoying, but there's a killer sting in the tail: HTML e-mail is spreading a new breed of virus. See *Caught a dose of the KAK?* where you will find that sending HTML is akin to sharing needles. Outlook Express sends HTML by default, so the Net is awash with the stuff. OE users should consider switching to plain text from Tools / Options.

Regarding double-slashes, Outlook interprets them as a hypertext link to a file and helpfully adds the 'file:' prefix, whether you want it or not. This does not appear to be configurable. An answer at <http://chattanooga.net/~scochran/hyp.htm> involves downloading a utility to change one of your DLL files. I haven't tried it because there is an easy fix – always put a space after '//'. Without it, Outlook 2000 seems not to add 'file:' when composing in plain text format but the recipient's copy of Outlook or OE may do so upon receipt.

Word

Saving embedded images

Q I have been given a pile of Word documents with embedded bitmap graphics. I need to extract these and save them to disk as individual files. I cannot find any way to export graphics from Word. I tried copying them to the clipboard, but pasting them into Paint gives very low resolution. Do you know how to do this?

Margaret Sutton

A The only way I know is to save the document in HTML format. Word will pull out all the images and save them as GIFs, though you won't get the original filenames. If you require them in a different format, you need a batch conversion utility. Graphic Workshop is my own favourite for this job – download a copy from www.mindworkshop.com. Don't be frightened by the resident pagans or the Indecent Images CD-ROM – it's all in the best possible taste.

Excel

The ultimate stripes

Two readers sent good follow-ups to the *Smarter stripes* item in issue 162.

Peter Ingham developed the idea to give multi-level striping, for example allowing you to highlight every tenth row in one

colour and every fifth line in another. Before telling you about that, though, we need to go back to the beginning.

The story so far is to select a range, bring up the conditional formatting dialog and select 'Cell value is' in the first field, 'equal to' in the second, and enter this formula in the third:

```
=IF(MOD(ROW(),2),A33,A33&"X")
```

You choose a new background after pressing the Format button, and that's it. I explained how this works in issue 162.

Brian Bromby spotted that the formula is needlessly complicated. His method is to change the first field to 'Formula Is' and then:

```
=MOD(ROW(),2)
```

The formula will produce 1 or 0 depending whether the row number is odd or even. Excel equates 0 with false and non-zero with true. With 'Formula Is', Excel just looks for true or false as the result of the formula, so the cell value need not be brought into the equation.

Now, suppose that instead of alternating colours you want every tenth line to have a green background and every fifth to be a

paler green. Set your colour format and change the formula to:

```
=NOT(MOD(ROW(),10))
```

You can do this in one cell paste the format to the rest of the range. This spreads the alternating strips out to one stripe in ten, because the MOD(x,10) only gives zero when 'x' is a multiple of ten. NOT() flips true to false and vice-versa, so the formula is true every tenth row.

Copy the formula to the clipboard, click Add to add a second condition, select 'Formula Is' again, and paste it into the second field. Change the 10 to 5 and pick a new background. Close the dialog and paste the format around.

This doesn't work if the '5' condition is first and the '10' second because the first condition takes precedence over the second. Since the MOD 5 condition is also true when the MOD 10 condition is true, your '10' backgrounds get overwritten with the '5' format.

I think that's enough on stripy spreadsheets, but looking back over this thread it's surprising how much the original clunky method has been hacked and honed to produce a simple, neat solution. There is a lesson to be learned from this – see *Quick off the blocks!* below. **PCP**

IMPROVE YOUR PROGRAMMING

Quick off the blocks!

Want to learn to program better? Then study your own code...

When Tetris first appeared I worked on a home computer magazine. We got our copy on a Friday afternoon and were instantly hooked. Tetris looked easy to clone too, and by Sunday I had my own version up and, well... limping.

By today's standards the Amstrad CPC was crushingly slow and you quickly ran into speed problems with graphically intensive programs. My main loop wasn't fast enough, giving jerky graphics and sticky keyboard response.

The loop was two pages of convoluted assembly language. Over several days of hard thinking I gradually reduced it to less than one. Most of what

remained concerned building look-up tables before the start of play, in order to cut the amount of calculation required inside the loop. This critical section of code had been chiselled down to just a few lines. It was easy to read, elegant and went like stink. Problem solved – the doppelganger worked as smoothly as the genuine article. Modern PCs have memory and processor power to spare so optimisation is rarely a priority. Programmers trade reduced development time (and cost) for flabby code.

Interpreted languages such as VBA macros run relatively slowly and I recommend

heavyweight code tuning as an occasional exercise.

Spreadsheets can also benefit. You may find that the optimum code (or spreadsheet design) for speed is not the optimum for size on disk, or in memory (not the same thing). Reliability and maintainability considerations may also lead you down a different avenue. You have to work out the options and judge which is best. What you gain by exploring them is greatly improved skill which carries through to future projects, programs that run better on less capable equipment, and a heck of a lot of satisfaction.